

REMARKS

The Office Action rejected Claims 1, 6, 12, 43, 48, and 53 under 35 U.S.C. § 102(b). The Office Action also rejected Claims 2-5, 7-11, 13-42, 44-47, 49-52, and 54-67 under 35 U.S.C. § 103(a). Applicants have amended Claims 1, 3, 12, 13, 24, 34, 43, 45, and 56 to more particularly point out the subject matter of the invention. Applicants have added new Claim 68. Applicants have amended the specification to correct typographical errors. Furthermore, Applicants have revised the drawings and are submitting substitute Figures 1-6 with this amendment. Finally, Applicants are hereby submitting remarks in support of allowance of Claims 1-68. Therefore, reconsideration of Claims 1-68 is respectfully requested in view of the amendments and remarks.

Rejection of Claims 1, 6, 12, 43, 48, and 53

The Office Action rejected Claims 1, 6, 12, 43, 48, and 53 under 35 U.S.C. § 102(b) as being anticipated by Perlman, U.S. Patent No. 4,864,559. Specifically, the Office Action stated that Perlman teaches all elements of Claims 1 and 43, including transmitting to each selected node a packet including the data block and a first list of the nodes assigned to the selected node, as in column 5, line 67. Applicants respectfully disagree with the Office Action that Perlman teaches all elements of Claims 1 and 43.

Perlman does not teach transmitting a list of nodes assigned to the selected node as recited by pending Claims 1, 6, 12, 43, 48, and 53. Applicants have amended Claims 1, 3, 12, 13, 24, 34, 43, 45, and 56 to more clearly recite that the list transmitted to the selected node dynamically associates the node with unselected nodes from the list for transmitting the data block to those unselected nodes. Hence, as opposed to a predetermined arrangement of nodes, where a predefined relationship arranges certain

nodes as high level transport nodes and other nodes as lower level nodes, the methods and systems recited by Claims 1, 6, 12, 43, 48, and 53 are directed to a dynamic arrangement of nodes for the transport of a specific data block. The arrangement is facilitated by the transmission of the assigned node list. Conversely, Perlman discloses a system where the arrangement of nodes is predetermined, assigning some nodes as level 1 nodes and other nodes as level 2 nodes. Col. 6, ll. 9-29. Communication of messages is to nodes provided by a locally stored list of known nodes. Col. 5, ll. 62-67. There is no transmission of a list of assigned nodes in Perlman, rather, each node maintains its own list of known nodes. Col. 11, ll. 3-14. Therefore, Perlman does not disclose transmitting a list of assigned nodes to dynamically associate a node with the unselected nodes, as recited by pending Claims 1, 6, 12, 43, 48, and 53. Accordingly, Claims 1, 6, 12, 43, 48, and 53 are allowable over Perlman for at least this reason.

Rejection of Claims 7-10, and 49-52

The Office Action rejected Claims 7-10, and 49-52 under 35 U.S.C. § 103(a) as being unpatentable over Perlman. Claims 7-10 depend from Claim 1 and are therefore allowable over Perlman for at least the reason provided above with respect to Claim 1. Claims 49-52 depend from Claim 43 and are therefore allowable over Perlman for at least the reason provided above with respect to Claim 43.

Rejection of Claims 2-5, 11, 13-42, 44-47, and 54-67

The Office Action rejected Claims 2-5, 11, 13-42, 44-47, and 54-67 under 35 U.S.C. § 103(a) as being unpatentable over Perlman in view of U.S. Patent No. 5,787,083 to Iwamoto et al. Specifically, the Office Action stated that Iwamoto teaches assigning unselected nodes to selected nodes, where each unselected node is assigned to at least one

selected node. Furthermore, the Office Action stated that Iwamoto teaches editing the member node list and re-assigning nodes to a selected assigned node in addition to transmitting the list of assigned nodes. Applicants respectfully disagree with the Office Action that Iwamoto discloses assigning nodes to selected nodes and transmitting a list of assigned nodes to the selected nodes.

Iwamoto does not select nodes from a plurality of recipient nodes. Pending Claims 2-5, 11, 13-42, 44-47, and 54-67 recite that the sending node divides a set of recipient nodes to selected nodes and unselected nodes. Hence, the selected nodes are from the group of recipient nodes for the data block. In other words, the nodes from which the selected nodes are chosen are substantially homogeneous; they include recipient nodes receiving the data block. Conversely, Iwamoto discloses that special switch nodes are associated with member terminals, some of whom are selected to receive a broadcast by reference to a subscriber list. Col. 4, ll. 19-27. Each switch node accommodates a plurality of subscriber terminals for carrying broadcast data to the subscriber terminals. Col. 1, ll. 11-17. The switch node is not a recipient node, but rather a special routing node for broadcasting information from the information generating means. Col. 1, ll. 40-45. Hence, Iwamoto does not disclose selecting some of the recipient nodes as nodes which forward the data block to other unselected nodes but rather selecting subscriber nodes to receive a broadcast over a predetermined arrangement of switch nodes and subscriber nodes. Iwamoto does not disclose the dynamic assignment of nodes to a selected node.

Additionally, in Iwamoto, the nodes are pre-assigned to a switch node, by each switch node accommodating a plurality of subscriber terminals. Col. 3, ll. 49-53. On the

other hand, in the systems and methods recited by Claims 2-5, 11, 13-42, 44-47, and 54-67, the list transmitted to the selected nodes dynamically assigns unselected nodes to selected nodes. Hence, there is no predetermined association in the systems and methods recited by Claims 2-5, 11, 13-42, 44-47, and 54-67. Moreover, Iwamoto transmits the subscriber list during a setup stage. Col. 4, ll. 19-27. The actual data is transmitted at a later time. Instead, the systems and methods recited by Claims 2-5, 11, 13-42, 44-47, and 54-67 transmit the list of unselected nodes assigned to a selected node in the same packet as the data block to be transmitted to the unselected nodes. Therefore, Claims 2-5, 11, 13-42, 44-47, and 54-67 are allowable over the combination of Perlman and Iwamoto for at least these reasons.

New Claim 68

Applicants have submitted new Claim 68 in this Amendment. Claim 68 is fully supported by the specification as filed. Therefore no new matter is added by this Amendment.

Claim 68 recites transmitting a list of unselected nodes to a selected node to facilitate transmission of a data block to the unselected nodes. As discussed above with reference to the 35 U.S.C. 102(b) and 35 U.S.C. 103(a) rejections, the prior art does not disclose transmitting a list of unselected nodes to selected node so as to cause the selected nodes to transmit a data block to the unselected nodes. Accordingly, Claim 68 is allowable over the prior art for at least the reasons provided above in response to the 35 U.S.C. 102(b) and 35 U.S.C. 103(a) rejections.

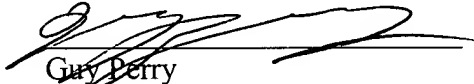
SUMMARY

Applicants have amended Claims 1, 3, 12, 13, 24, 34, 43, 45, and 56. Applicants have added Claim 68. Applicants have submitted remarks in support of allowance of Claims 1-68. Accordingly, the present application is now in condition for allowance with Claim 1-68.

If the Examiner wishes to direct any questions concerning this application to the undersigned Applicants' representative, please call the number indicated below.

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MARKED-UP REPLACEMENT PARAGRAPH

The transmission of a data packet from a sending node to other nodes in a channel will now be described with reference to FIG 4. First, the sending node 110 determines the value of MAXCHAN, the maximum number of simultaneous transmission streams that it can support (step 500). MAXCHAN may be a function of the node's effective bandwidth, or may be empirically determined.

MARKED-UP CLAIMS

1. A method for transmitting a data block over a network from a first sending node to a first set of recipient nodes, comprising:

in the first sending node:

dividing the first set of recipient nodes into a subset of selected nodes, selected according to scoring criteria associated with each recipient node, and a subset of unselected nodes;

assigning at least one of the unselected nodes to at least one selected node according to scoring criteria associated with the respective selected nodes; and

transmitting to each selected node a packet including the data block and a first list of the nodes assigned to the selected node, the list dynamically associating the selected assigned node with the reassigned nodes for the transmission of the data block to the reassigned nodes.

3. The method of claim 1, further comprising: in at least one recipient node:

receiving from the first sending node the packet including the data block and the first list of assigned nodes;

dividing the first list of assigned nodes into a subset of selected assigned nodes, selected according to scoring criteria associated with each assigned node, and a subset of unselected assigned nodes;

reassigning each of the unselected assigned nodes to at least one selected assigned node according to the scoring criteria associated with the respective selected assigned nodes; and

transmitting to each selected assigned node a packet including the data block and a list of the nodes reassigned to the selected assigned node, the list dynamically associating the selected assigned node with the reassigned nodes for the transmission of the data block to the reassigned nodes.

12. The method of claim 1, further comprising:

in a second sending node, which is also in the first set of recipient nodes:

dividing a second set of recipient nodes into a subset of selected nodes, selected according to scoring criteria associated with each recipient node, and a subset of unselected nodes;

assigning each of the unselected nodes from the second set of recipient nodes to at least one selected node from the second set of recipient nodes according to scoring criteria associated with the respective selected nodes; and

transmitting to each selected node from the second set of recipient nodes a packet including the data block and a second list of the nodes assigned to the selected node, the list dynamically associating the selected node with the unselected nodes for the transmission of the data block to the unselected nodes.

13. The method of claim 12, further comprising: in a second selected node:

receiving from the second sending node the packet including the data block and the second list of assigned nodes;

dividing the second list of assigned nodes into a subset of selected assigned nodes, selected according to scoring criteria associated with each assigned node, and a subset of unselected assigned nodes;

reassigning each of the unselected assigned nodes from the second list of assigned nodes to at least one selected assigned node from the second list of assigned nodes according to the scoring criteria associated with the respective selected assigned nodes; and

transmitting to each selected assigned node from the second list of assigned nodes a packet including the data block and a list of the nodes reassigned to that node, the list dynamically associating the selected assigned node with the reassigned nodes for the transmission of the data block to the reassigned nodes.

14. A method for transmitting a data block over a network from a first sending node to a first set of recipient nodes, comprising:

in at least one selected node in the first set of recipient nodes:

receiving from the sending node the packet including the data block and a list of assigned nodes;

dividing the list of assigned nodes into a subset of selected assigned nodes, selected according to scoring criteria associated with each assigned node, and a subset of unselected assigned nodes;

reassigning at least one of the unselected assigned nodes to at least one selected assigned node according to the scoring criteria associated with the respective selected assigned nodes; and

transmitting to each selected assigned node a packet including the data block and a list of the nodes reassigned to the selected assigned node, the list dynamically associating the selected assigned node with the reassigned nodes for the transmission of the data block to the reassigned nodes.

24. A computer program product residing on a computer readable medium comprising instructions for causing a particular network node, connected to a network having a plurality of network nodes, to:

create a first set of recipient nodes from among the plurality of network nodes;

divide the first set of recipient nodes into a subset of selected nodes, selected according to scoring criteria associated with each recipient node, and a subset of unselected nodes;

assign at least one of the unselected nodes to at least one selected node according to scoring criteria associated with the respective selected nodes; and

transmit to each selected node a packet including a data block and a list of the nodes assigned to the selected node, the list dynamically associating the selected node with the unselected nodes for the transmission of the data block to the unselected nodes.

26. The product of claim 24, further comprising instructions for causing the particular network node to

receive from one of the network nodes a packet including a data block and a list of assigned nodes;

divide the received list of assigned nodes into a subset of selected assigned nodes, selected according to scoring criteria associated with each assigned node, and a subset of unselected assigned nodes;

reassign each of the unselected assigned nodes to at least one selected assigned node according to the scoring criteria associated with the respective selected assigned nodes; and

transmit to each selected assigned node a packet including the received data block and a list of the nodes reassigned to the selected assigned node, the list dynamically associating the selected assigned node with the reassigned nodes for the transmission of the data block to the reassigned nodes.

34. A computer program product residing on a computer readable medium comprising instructions for causing a particular network node, connected to a network having a plurality of network nodes, to:

receive from one of the network nodes a packet including a data block and a list of assigned nodes;

divide the list of assigned nodes into a subset of selected assigned nodes, selected according to scoring criteria associated with each assigned node, and a subset of unselected assigned nodes;

re-assign at least one of the unselected assigned nodes to at least one selected assigned node according to the scoring criteria associated with respective selected assigned nodes; and

transmit to each selected assigned node a packet including the received data block and a list of the nodes reassigned to the selected assigned node, the list dynamically associating the selected assigned node with the reassigned nodes for the transmission of the data block to the reassigned nodes.

43. A system for transmitting data comprising:

a data network;

a plurality of network nodes, including at least one sending node; wherein each sending node is programmed to:

create a first set of recipient nodes from among the plurality of network nodes;

divide the first set of recipient nodes into a subset of selected nodes, selected according to scoring criteria associated with each recipient node, and a subset of unselected nodes;

assign at least one of the unselected nodes to at least one selected node according to scoring criteria associated with the respective selected nodes; and

transmit to each selected node a packet including a data block and a list of the nodes assigned to the selected node, the list dynamically associating the selected node with the unselected nodes for the transmission of the data block to the unselected nodes.

45. The system of claim 43, wherein at least one of the plurality of network nodes is programmed to:

receive from one of the network nodes a packet including a data block and a list of assigned nodes;

divide the list of assigned nodes into a subset of selected assigned nodes, selected according to scoring criteria associated with each assigned node, and a subset of unselected assigned nodes;

reassign each of the unselected assigned nodes to at least one selected assigned node according to the scoring criteria associated with respective selected assigned nodes; and

transmit to each selected assigned node a packet including the received data block and a list of the nodes reassigned to the selected assigned node, the list dynamically associating the selected assigned node with the reassigned nodes for the transmission of the data block to the reassigned nodes.

56. A system for transmitting data comprising:

a data network;

a plurality of network nodes;

wherein at least one particular node of the plurality of network nodes is

programmed to:

receive from one of the network nodes a packet including a data block and a list of assigned nodes;

divide the list of assigned nodes into a subset of selected assigned nodes, selected according to scoring criteria associated with each assigned node, and a subset of unselected assigned nodes;

reassign at least one of the unselected assigned nodes to at least one selected assigned node according to the scoring criteria associated with respective selected assigned nodes; and

transmit to each selected assigned node a packet including the received data block and a list of the nodes reassigned to the selected assigned node, the list

dynamically associating the selected assigned node with the reassigned nodes for the transmission of the data block to the reassigned nodes.